Pityriasis Versicolor (Tinea Versicolor) Due to *Malassezia Furfur*: A Case Report
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ABSTRACT
A 22-year-old boy presented with 6 months history of asymptomatic hyperpigmented patches on the upper arms and trunk. Skin scrapings from the patches were subjected to 10% KOH wet mount which showed short, stout, blunt, curved hyphae and clusters of round yeast cells. Culture was put up on Sabouraud dextrose agar with olive oil overlay (SDA-0). *Malassezia furfur* was isolated from the culture. A diagnosis of Pityriasis versicolor was made which is an emerging fungal infection.

KEYWORDS: Pityriasis versicolor, Furfur, Fungal infection, Papulosquamous, Folliculitis, Hyper-pigmented patches

INTRODUCTION
Fungal infections are of three types; superficial, subcutaneous and systemic infections. Superficial infections are further classified into surface infections and cutaneous infections. The organism lives on superficial parts of skin and is not associated with inflammatory response in surface infections e.g., Pityriasis versicolor. The organism invades deeper parts of dermis and hair follicles and is associated with inflammatory reaction in cutaneous infections e.g., Dermatophytosis. Surface infections with Malassezia may take 3 clinical forms pityriasis versicolor, papulosquamous, folliculitis[1]. Pityriasis versicolor is the most common skin disease caused by *M. furfur* which forms a part of normal flora of skin[2]. The most commonly affected sites are neck, upper part of trunk, upper aspect of arms, face. Prevalence is high in tropical countries like India, warm climate, in age group of 20-45 years and in both the sexes[3]. The predisposing conditions are malnutrition, working in hot and humid environment, sharing of linen with roommates and excessive sweating.

We hereby present a case of Pityriasis versicolor.

CASE REPORT
A 22-year-old male college student from Nandyal town staying in hostel accommodation presented with 6 months history of asymptomatic hyper-pigmented patches on the upper arms, chest and back [Figure 1]. There was no history of itching, no loss of sensation, no past history of similar lesions, no history of exposure to venereal diseases, no history of fever or any medication. The subject was having excessive sweating, he was a hostelite sharing linen with roommates. On examination, hair, nail and mucous membrane were intact.

Collection of sample was done by cleaning the affected area of skin with 70% alcohol and after drying, active edges of the lesion were scrapped by using sterile no. 15 blade and scrapings were collected in a sterile
petridish. Processing of the sample was done by direct microscopy with 10% KOH wet mount, methylene blue wet mount, calcoflour white stain and culture on SDA with olive oil overlay.

KOH wet mount revealed clusters of round yeast cells about 2–7 μm along with blunt, short, stout curved hypae with occasional branching. The “banana and grapes” or “spaghetti and meat balls” are observed which are characteristic diagnostic forms in M. furfur infections [Figure 2].

Methylene blue mount also showed yeast cells and hyphae stained blue [Figure 3].

Calcoflour white staining was done which is a sensitive as well as specific staining procedure. It binds to the chitin in the cell wall that fluoresces brightly under UV illumination [Figure 4].

Scrapings were inoculated onto SDA with olive oil overlay and incubated at 37°C for 3–5 days. Identification of M. furfur was done based on lipid dependence [4] colony characteristics on SDA, colony morphology by Gramstain and LPCB mount and biochemical reactions like catalase, urease, esculin hydrolysis, utilization of tweens and growth in 10% castor oil. Colonies were cream coloured slightly raised with irregular edges, which were observed on 3rd day [Figure 5].

LPCB mount and Gram staining of the colonies showed yeast cells and occasional hyphae [Figure 6].

Figure 1: Hyper pigmented patches on upper aspects of arm, chest & back

Figure 2: KOH mount showing hyphae and yeast cells

Figure 3: Methylene blue mount showing yeast cells and hyphae stained blue
Figure 4: Calcoflour white staining

Figure 5: Cream colour colonies with irregular edges

Figure 6: LPCB mount and Gram staining showing yeast cells and occasional hyphae

Figure 7: (a) catalase test positive (b) urease test positive (c) esculin hydrolysis seen in Tween 60 esculin agar slant (d) Tween assimilation with 20, 40, 60, 80
The biochemical reactions like catalase, urease, esculin hydrolysis were positive with utilization of tweens. The catalase test was done by adding a loopful of colony to 3% hydrogen peroxide in a test tube which showed effervescence indicating positive reaction [Figure 7a]. Esculin hydrolysis was done by the method described by Mayser et al.[2]. A loopful of fresh yeast was inoculated deeply in the Tween 60 esculin agar slant, consisting of Tween 60, ferric ammonium citrate, esculin and agar (Hi media). The slant was incubated for 5 days at 32°C, the splitting of esculin is revealed by darkening of the medium [Figure 7c]. The ability to utilize individual Tween compounds like, Tween 20, 40, 60 & 80 was tested according to the method described by Guillot et al.[6] Sterile SDA (16 ml) was melted and allowed to cool to approximately 50°C. Malassezia yeast suspensions (2 ml) were mixed with SDA and the mixtures were plated by pour plate method[4]. Four wells were made in agar by means of a 2 mm diameter punch, one in each quadrant, and filled with 5 μl Tween 20, 40, 60 and 80. The plates were incubated for one week at 32°C. Utilization of Tween was assessed by the degree of growth and/or reaction (precipitation) of the lipophilic yeasts around individual wells[2] [Figure 7d].

The patient was treated with oral antifungal Fluconazole 400 mg for 3 days and topical antifungal Zoderm lotion for 2 months. The lesions completely resolved after treatment

DISCUSSION

Pityriasis versicolor is a superficial fungal infection with a worldwide distribution[5]. The disease has been reported among 10–30 years of age group while other studies have found Pityriasis versicolor is uncommon in children[2]. Although different parts of the body were involved the highest prevalence was related to regions e.g., neck, chest and back. Similar distribution of lesions is seen in our subject. Clinically, macular, erythematous, hyperpigmented or hypopigmented lesions with fine scaling are common in this disease. Our subject presented with hyperpigmented patches which is rare.

CONCLUSION

The occurance of hyper pigmented patches which are rare in Pityriasis versicolor, should also be considered in diagnosing the disease with different methods.

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